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**Blood Brain Barrier (BBB)-on-Chip: Development and validation of a novel iPS-based microfluidic model of the human BBB**

**Grant Award Details**

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Blood Brain Barrier (BBB)-on-Chip: Development and validation of a novel iPS-based microfluidic model of the human BBB

**Grant Type:** Inception - Discovery Stage Research Projects

**Grant Number:** DISC1-08800

**Project Objective:** To develop and systematically characterize a novel model of the human BBB using a microfluidic device (chip) and cells derived from induced pluripotent stem cells (iPSCs).

**Investigator:**

<b>Name:</b>	Clive Svendsen
<b>Institution:</b>	Cedars-Sinai Medical Center
<b>Type:</b>	PI

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**Disease Focus:** Neurological Disorders

**Human Stem Cell Use:** iPS Cell

**Cell Line Generation:** iPS Cell

**Award Value:** \$241,992

**Status:** Closed

**Progress Reports**

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**Reporting Period:** Year 1

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**Grant Application Details**

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**Application Title:** Blood Brain Barrier (BBB)-on-Chip: Development and validation of a novel iPS-based microfluidic model of the human BBB

**Public Abstract:****Research Objective**

to develop and systematically characterize a novel model of the human BBB using a microfluidic device (chip) and cells derived from induced pluripotent stem cells (iPSCs).

**Impact**

The success of the proposed research will provide a novel, highly attractive model for screening of molecules to treat neurological disorders and for personalized medicine in the future

**Major Proposed Activities**

- To develop a personalized model of the BBB-on-Chip using iPSC-derived brain microvascular endothelial cells (BMECs) and iPSC-derived neurons and astrocytes
- To perform a detailed profiling of small molecules crossing (or not) the human BBB from circulating blood using Mass Spectrometry
- To conduct a secretome profiling of peptides and proteins that are transported across the BBB with/without iPSC-derived neurons and astrocytes

**Statement of Benefit to California:**

The state of California and its citizens will benefit from this project in a financial level as conducting this project at Cedars-Sinai will provide more job opportunities. Moreover, Emulate Inc. is planning to open a branch in the wet cost. Our successful collaboration will strongly promote California as their destination. Moreover, the Californian citizens will benefit from the potential development of new therapies for neurological disorders made available by this novel model

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